

65 - 85% by weight, methyl methacrylate
0.5-1.5% by weight, allylmethacrylate;
wherein the polymeric particles have a mean particle size of
25-55 micrometers, and a particle size distribution of
between 15-110 micrometers.

17. (amended) A resin comprised of

a) 20 - 90% by weight, matrix comprised of polymethyl
methacrylate or alkyl methacrylate/alkyl acrylate
copolymer;

b) 0 - 50% by weight, modifiers; and

c) 5 - 30% by weight, highly crosslinked spherical
polymeric particles comprised of about

0-100% by weight, styrene,

0-100% by weight, alkyl methacrylate,

0-100% by weight, alkyl acrylate and

crosslinking agent wherein the polymeric particles have a
mean particle size of 25-55 micrometers, and a particle size
distribution of between 15-110 micrometers.

✓
Delete Claim 2.

REMARKS

Prior to this Response and Amendment the claims pending in
the application were Claims 1 to 17. After amendment, the
claims remaining in the application are 1(amended), 3,
4(amended), 5, 6(amended), 7(amended), 8(amended),
9(amended), 10, 11, 12(amended), 13, 14, 15(amended),
16(amended) and 17(amended).

The claims stand under rejection and objection for various
reasons.

Claims 2, 4, 6, 7, 8, 12, 16 and 17 stand rejected under 35
USC 112, second paragraph, as being indefinite for failing

to particularly point out and distinctly claim the subject matter of the invention.

In particular, the Examiner points that the term "beads" lacks antecedent basis and the term "based" renders certain claims indefinite. In response the Applicant has removed these terms from the claims. Also, the Examiner requests clarification whether the percentage used in certain claims are based on weight or volume. In response the Applicant has inserted "by weight" where appropriate.

Claims 1, 3, 4, 6-11, and 17 stand rejected under 35 U.S.C. 102(b) as being anticipated by USP 5,336,954 ("WU" hereinafter). Claims 5 and 12-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over WU. Lastly, Claims 2 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over WU in view of USP 6,077,575 ("MINGHETTI" hereinafter).

The Applicants have reviewed these references. They do not teach, suggest or disclose the Applicants' claimed invention of an extruded polymeric article comprised of a polymeric matrix and polymeric particles which are substantially spherical, highly crosslinked, have a mean particle size of between 25 to 55 micrometers, and have a particle size distribution between 10-110 micrometers and wherein there is a refractive index mismatch between the particles and the matrix resulting in the article having a frosted, a surface textured finish or a frosted and surface textured finish.

In contrast, WU teaches a method of gloss reduction for sheet/film using particles made by an emulsion process. The product described by WU is a Plexiglas L type which has a soft surface due to the use of particles having a small particle size and a rubbery core (column 9, lines 53-58 and

column 10, lines 1- 11) in its core-shell structure. All of the examples described in WU teach how to make large core/shell emulsion particles through a swelling process which extended the size of normal emulsion particle from less than 1 um up to 15 um. As stated in WU, the useful core/shell polymer particles have particle diameter from about 2 and about 15 um, preferably from 5 to 10 um, see column 9, lines 3-20. The particles with a rubbery core and having that size distribution (2-10 um) are simply too small and soft to produce frosted/textured type of product of the present invention.


MINGHETTI relates to granite or marble type acrylic sheet, such as Aristech's Quarite, which is used for solid surface application such as Spa shells and bathroom fixtures. All of the examples of MINGHETTI relate to using preformed particles with a proper swelling ratio to prevent the "accent particles" from settling during the curing process for an even dispersion within the matrix.

Thus, the description of preformed particles, examples, and claims given in MINGHETTI are for a different product and use which is not related to the ones of the present invention. Lastly, the MINGHETTI particles, granulated from preformed crosslinked sheet and without having a refractive index mismatch, in a 3 - 5% loading, are not suitable for the present invention.

Since the Applicant believes that the reasons for rejection have been overcome, the claims herein should be allowable to

the Applicant. Accordingly, reconsideration and allowance are requested.

Respectfully submitted;


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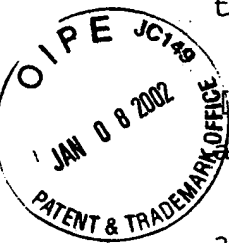
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PMMA/3556/7-17-01 OA AMD draft

Attachment: Marked Version of Proposed Amended Claims

1 (amended) An extruded polymeric article comprised of a polymeric matrix and polymeric particles which are substantially spherical, highly crosslinked, have a mean particle size of between ~~[15 and 70]~~ 25 to 55 micrometers and have a particle size distribution between 10-110 micrometers wherein the article has a frosted, a surface textured finish or a frosted and surface textured finish.

2. ~~(deleted) The article of Claim 1, wherein the beads have mean particle size of 25-55 micrometers.]~~

3. The article of Claim 1 wherein the polymeric matrix is an ABS terpolymer, ASA copolymer, polycarbonate, polyester, PETG, MBS copolymer, HIPS, acrylonitrile/acrylate copolymer, polystyrene, SAN, MMA/S, an acrylonitrile/methyl methacrylate copolymer, impact modified polyolefins, PVC, impact modified PVC, imidized acrylic polymer, acrylic polymer or impact modified acrylic polymer.

4. (amended) The article of Claim 3 wherein the polymeric matrix is comprised of polymethyl methacrylate ~~[based]~~.

5. The article of Claim 1 wherein a frosted appearance is achieved through the mismatch of the refractive indices of the polymeric particles and polymeric matrix by greater than 0.02.

6. (amended) The article of Claim 1 comprised of

- a) 20 - 90% by weight, polymethyl methacrylate or alkyl methylacrylate/alkyl acrylate copolymer ~~[based]~~ matrix;
- b) 0 - 50% by weight, modifiers; and
- c) 5 - 60% by weight, highly crosslinked spherical ~~[beads]~~ polymeric particles comprised of about 0-100 % by weight,

styrene; 0-100% by weight, alkyl methacrylate, 0-100% by weight, alkyl acrylate and crosslinking agent.

7. (amended) The article of Claim 1 comprised of

- a) 20 - 90% by weight, polymethyl methacrylate or alkyl methylacrylate/alkyl acrylate copolymer [~~based~~] matrix;
- b) 0 - 50% by weight, modifiers; and
- c) 5 - 30% by weight, highly crosslinked spherical [~~beads~~] polymeric particles comprised of about
0-100% by weight, styrene,
0-100% by weight, alkyl methacrylate,
0-100% by weight, alkyl acrylate and crosslinking agent.

8. (amended) The article of Claim 1 comprised of

- a) 20 - 90% by weight, polymethyl methacrylate [~~based~~] matrix;
- b) 0 - 50% by weight, modifiers; and
- c) 5 - 30% by weight, highly crosslinked spherical [~~beads~~] polymeric particles comprised of
0 - 50% by weight, styrene
100- 50% by weight, alkyl alkylacrylate, alkyl acrylate
or a combination thereof and
0.1-2.5% by weight, crosslinking agent.

9. (amended) The article of Claim 1, wherein the particles are comprised of

- a) 0 - 50% by weight, styrene;
- b) 45-100% by weight, alkyl methylacrylate or alkyl acrylate;
- c) 0.01-5% by weight, crosslinking agent.

10. The article of Claim 9 wherein the crosslinking agent is ethylene glycol dimethacrylate, divinylbenzene or allyl methacrylate.

11. The article of Claim 10 wherein the crosslinking agent is divinylbenzene.

12. (amended) A resin comprised of

- a) 20 - 90% by weight, matrix comprised of polymethyl methacrylate [~~based matrix~~];
- b) 5 - 50% by weight, modifiers; and
- c) 5 - 30% by weight, highly crosslinked spherical [~~beads~~] polymeric particles comprised of

10- 50% by weight, styrene

90- 50% by weight, methyl methacrylate

0.1 - 2.5% by weight, crosslinking agent,

wherein the [~~beads~~] polymeric particles have a mean particle size of [~~15-70~~] 25-55 micrometers, and a particle size distribution of between 15-110 micrometers.

13. The resin of Claim 12 wherein the crosslinking agent is ethylene glycol dimethacrylate, divinylbenzene or allyl methacrylate.

14 The resin of Claim 12 wherein the crosslinking agent is allylmethacrylate.

15. (amended) The resin of claim 12 wherein the [~~beads~~] polymeric particles contain a colorant.

16. (amended) A resin comprised of

- a) 70 - 85% by weight, matrix comprised of polymethyl methacrylate [~~based matrix~~]; and
- b) 15 - 30% by weight, highly crosslinked spherical [~~beads~~] polymeric particles comprised of

15 - 35% by weight, styrene

65 - 85% by weight, methyl methacrylate

0.5-1.5% by weight, allylmethacrylate/

wherein the ~~[beads]~~ polymeric particles have a mean particle size of ~~[15-70]~~ 25-55 micrometers, and a particle size distribution of between 15-110 micrometers.

17. (amended) A resin comprised of

- a) 20 - 90% by weight, matrix comprised of polymethyl methacrylate or alkyl methacrylate/alkyl acrylate copolymer ~~[based matrix]~~;
- b) 0 - 50% by weight, modifiers; and
- c) 5 - 30% by weight, highly crosslinked spherical ~~[beads]~~ polymeric particles comprised of about
 - 0-100% by weight, styrene,
 - 0-100% by weight, alkyl methacrylate,
 - 0-100% by weight, alkyl acrylate andcrosslinking agent wherein the polymeric particles have a mean particle size of 25-55 micrometers, and a particle size distribution of between 15-110 micrometers.